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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

HO, ALLEN C

ART UNIT PAPER NUMBER

2882

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/644,992 | | DALPIAZ ET AL. | |
| | Examiner | | Art Unit | |
| | Allen C. Ho | | 2882 | |

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-19 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-19 and 21-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Milnes (U. S. Patent No. 6,463,121 B1).

With regard to claims 1, 2, 9, and 15, Milnes disclosed a system for positioning dental x-ray apparatus, comprising: an input and output device (**122**) for interactive control (column 3, lines 47-64); a storage area (**710, 725**), in which at least one digitized dental x-ray image (when x-ray image comprises teeth) and information (the x-ray gantry and table positions) concerning the dental x-ray apparatus assignable to the digitized x-ray image are stored (column 4, lines 10-16); a computer interface (**710**), via which information can be interchanged with the dental x-ray

apparatus; means (122) for selecting area in the digitized dental x-ray image; a processing unit (710) which effects calculations based on the digitized dental x-ray image, the relevant information concerning the dental x-ray apparatus, and the selected area, in order to ascertain control data for the dental x-ray apparatus (column 5, lines 43-55), wherein the dental x-ray apparatus is controllable by the control data such that the selected area is covered when a new dental x-ray image is made, and wherein the information concerning the x-ray apparatus comprises coordinates of a trajectory (between locations) which have been saved in relation to the digitized x-ray image (column 5, lines 43-49).

With regard to claim 3, Milnes disclosed a system as defined in claim 1, wherein means for selecting the type of image (different portion of a patient) are provided.

With regard to claim 4, Milnes disclosed a system as defined in claim 1, further comprising means (720) for positioning a patient relatively to the x-ray apparatus, wherein the control data is adapted to control the means for positioning the patient (column 5, lines 46-55).

With regard to claim 6, Milnes disclosed a system as defined in claim 1, wherein the storage area includes current and/or voltage parameters saved in relation to the digitized x-ray image (x-ray tube control, Fig 8).

With regard to claim 7, Milnes disclosed a system as defined in claim 1, wherein the storage area includes information concerning gray tones in the representation of image saved in relation to the digital x-ray image (This is inherent as a digital x-ray image comprises gray tone information).

With regard to claim 8, Milnes disclosed a system as defined in claim 1, wherein the processing unit includes computation for determining the control data which takes into account the type of image (position of the image).

With regard to claim 11, Milnes disclosed a system as defined in claim 1, further comprising means for automatically recognizing areas by pattern recognition algorithm (column 6, lines 3-63).

With regard to claim 12, Milnes disclosed a system as defined in claim 1, wherein the selecting means are designed such that areas can be selected manually (column 3, lines 47-56).

With regard to claim 14, Milnes disclosed a system as defined in claim 1, further comprising means (930) for making a series of radiograms at different positions starting from a selected position.

With regard to claims 16 and 17, Milnes disclosed a method of positioning one of an emitter (132) and a detector (142) of a dental x-ray apparatus using an existing digitized dental x-ray image and information concerning the dental x-ray apparatus and assignable to the digitized dental x-ray image, comprising the steps of: loading and displaying at least one digitized dental x-ray image (315); determining coordinates of areas, with reference to the digitized dental x-ray image, which are to be depicted in another x-ray image (320); loading information (the x-ray gantry and table positions) concerning the dental x-ray apparatus; carrying out computation (325) on the basis of the digitized x-ray image, relevant information concerning the dental x-ray apparatus, and a selected area, in order to ascertain control data which controls the dental x-ray apparatus such that the selected area can be depicted in a new dental x-ray image (column 4, lines 17-38), wherein the information concerning the x-ray apparatus comprises coordinates of

the trajectory (between locations) which have been saved in relation to the digitized x-ray image, and a segment of the trajectory is calculated on the basis of the selected area (column 5, lines 43-49).

With regard to claim 18, Milnes disclosed a method as defined in claim 16, wherein the type of image (different portion of a patient) to be made by the x-ray apparatus is selected prior to the step of loading information concerning the dental x-ray apparatus.

With regard to claim 19, Milnes disclosed a method as defined in claim 16, wherein the control data is adapted to control means for positioning the patient relative to the x-ray apparatus (column 5, lines 46-55).

With regard to claim 21, Milnes disclosed a method as defined in claim 16, wherein the computation step includes one of a current and voltage parameters which are saved in relation to the digitized x-ray image (x-ray tube control, Fig. 8).

With regard to claim 22, Milnes disclosed a method as defined in claim 16, wherein the computation for determination of the control data takes into account one of the type of examination and the purpose of diagnosis of the patient (the location of the image).

With regard to claim 24, Milnes disclosed a method as defined in claim 16, wherein the computation step includes automatically recognizing areas by pattern recognition (column 6, lines 3-63).

With regard to claim 25, Milnes disclosed a method as defined in claim 16, wherein the areas can be determined manually (column 3, lines 47-56).

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With regard to claim 27, Milnes disclosed a method as defined in claim 16, further comprising the step of making a series of radiograms (930) at different positions starting from the selected position.

With regard to claim 28, Milnes disclosed a system as defined in claim 11, wherein the areas are teeth (the system tracks changes in position of any object, column 6, lines 3-63).

With regard to claim 29, Milnes disclosed a method as defined in claim 24, wherein the areas are teeth (the system tracks changes in position of any object, column 6, lines 3-63).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10, 13, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milnes (U. S. Patent No. 6,463,121 B1) as applied to claims 1 and 16 above, and further in view of Relihan *et al.* (U. S. Patent No. 6,233,310).

With regard to claims 10 and 23, Milnes disclosed a system as defined in claim 1 and a method as defined in claim 16. However, although Milnes disclosed a storage area that includes patient-dependent data (patient management, Fig. 8), Milnes fails to teach that this information is taken into account when determining the control data.

Relihan *et al.* disclosed an x-ray exposure management and control system. Relihan *et al.* taught that control data are generated based on patient size (column 4, lines 35-55). As a result, optimal image quality is achieved (column 3, lines 57-67).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the control data using patient-dependent data, since a person would be motivated to obtain high-quality images of a patient.

With regard to claims 13 and 23, Milnes in combination with Relihan *et al.* disclosed a system as defined in claim 10 and a method as defined in claim 23, wherein the processing unit includes one of statistical and stochastic linkings (neural network) of the patient-dependent data (column 6, lines 1-49).

Response to Arguments

6. Applicant's arguments filed 06 October 2005 with respect to claims 9, 11, 18, 22, and 24 have been fully considered and are persuasive. The rejections of claims 9, 11, 18, 22, and 24 under 35 U.S.C. 112, second paragraph, have been withdrawn.

7. Applicant's arguments filed 06 October 2005 have been fully considered but they are not persuasive.

The applicants argue that Milnes failed to teach "the information concerning the x-ray apparatus comprises coordinates of a trajectory which have been saved in relation to the digitized x-ray image". Specifically, the applicants point out that Milnes failed to teach storing the coordinates of a trajectory. The examiner respectfully disagrees. Milnes disclosed a system that positions an x-ray apparatus. Specifically, Milnes disclosed that an operator selects a location

within an x-ray image shown on the display (*i. e.*, a stored x-ray image), and the system processes the information received from the operator and moves the x-ray apparatus to the desired location (column 5, lines 43-49). It is necessary that a path or a trajectory is predetermined and stored before the system could actually move the x-ray apparatus from the current location to the desired location because there is an infinite number of trajectories that exist between the current location and the desired location. As shown in Figs. 5A and 5B, a desired location (**502**) is selected within an x-ray image, the system must determine a trajectory that connects the current location (the center of x-ray image **500**) to the desired location before the system could even move the x-ray apparatus. In other words, there has to be a pre-programmed trajectory between the current position and the desired location.

The applicants argue that Milnes failed to disclose a storage area that stores information concerning the dental x-ray apparatus assignable to the digitized dental x-ray image. The examiner respectfully disagrees. As disclosed by Milnes, the x-ray gantry and table positions are automatically stored with an image acquired (steps **310** and **335**, column 4, lines 10-38). In other words, there exists a storage area that stores at least one digitized dental x-ray image and information (the x-ray gantry and table positions) concerning the dental x-ray apparatus assignable to the digitized dental x-ray image. In fact, Milnes disclosed that any data or information being manipulated and/or used by the system is stored in a storage area somewhere in the system (column 3, lines 1-31).

Consequently, the rejections are being maintained.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
Art Unit 2882

13 December 2005